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Jeppson, P., and R. Borovicka. 1971.

Stream Fisheries Habitat Structures Constructed by State and Federal Agency Cooperation 1/

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Idaho Fish and Game Department, the Bureau of Land Management and the United States Forest Service have cooperated in several stream improvement projects in the State of Idaho. The purposes of cooperative Federal-State stream improvement projects in the upper Snake River basin of Idaho are primarily enhancement of fishing opportunities, sustained natural reproduction by native cutthroat trout, removal of barriers to fish migration, protection of eroding channels, and increased natural streamside cover and carrying capacity of the streams.

Angling opportunities were enhanced by construction of pools where shallow riffles formerly existed. Resting pools and alternating short riffles resulted in optimum numbers of fish. Growth of aquatic vegetation in pools increased food production and cover for trout. The increased depth behind and below low dams make shallow streams habitable by larger trout. With the increased depth, trees and vegetation along banks provide escape cover for spawning trout. Oxygen in water is increased at small waterfalls, benefiting fish eggs and larvae in bottom gravels.

Birch Creek in Clark County was one of Idaho's better trout streams until dewatering by irrigation diversions and elimination of pools by channel alterations severely curtailed the fish carrying capacity of the stream. Use of bentonite by irrigation interests to stop percolation also reduced the aquatic insect population. The stream is a good example of the value of fisheries improvement operations on reaches of streams that flow through Bureau of Land Management and State administered lands.

Thirteen log and board dams were constructed by the Idaho Fish and Game Department and the Idaho Falls district of the Bureau of Land Management to replace lost fishery habitat and reduce the rapid downstream movement

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1/ Presented with 35 mm slides and synchronized tape recording at the 101st annual meeting of the American Fisheries Society, Salt Lake City, Utah, 1971.

Ore BLM W/L Workshop 3/72

of natural and stocked rainbow trout. During construction it was necessary to divert the stream around the construction sites. Foundations of small dams were carefully laid out. Cribs in each bank permanently anchored the plank dams. A small crawler tractor was used to move the heavy logs and to cover the sill of the dams. Open areas underneath the plank sills were designed to provide escape cover for trout.

The flow of Birch Creek was then returned to the channel after construction. The bank ends of structures were riprapped with large rock, landscaped, and seeded with wheatgrass. Fencing a portion of the stream improvement area to exclude vehicles and livestock completed the construction phase of the project.

Streambank vegetation and riprap are largely unmolested within the exclosure. Outside the exclosure there has been some vandalism in the form of rock removed from structures and heavy grazing by livestock.

Aquatic vegetation soon took root in the pools. Riparian vegetation responded to protection from livestock to provide overhanging streambank cover for fish. Angling was heaviest near the dams to harvest the fish that concentrated after drifting downstream through several miles of altered channel. Electrofishing in the spring before stocking showed a 900 percent increase in numbers of trout in the improved area. There was also a reduction in loss of trout to downstream intermittent waters used for irrigation.

Birch Creek continues to provide improved trout fishing in the test area on public land that is completely open for recreation and easily accessible from an adjacent major highway.

The shallow depth of Summit Creek in Custer County, Idaho has kept the stream from reaching its potential as an excellent fly fishing stream. Ten trash catcher type structures, made of steel fence posts and heavy wire were installed in the stream to provide deeper water and create a more desirable pool-riffle ratio.

Approximately 30 dams were constructed in Robinson Creek on the Targhee National Forest to break up the long, rather monotonous riffle type stream. The dams were simply designed and easily constructed of logs, wire and rubble.

Gabion wire baskets were filled from the coarse rock bottom of Burns Creek to stabalize the channel and provide spawning areas for native cutthroat trout. The structures were carefully monitored for two years after construction and each held up well despite adverse runoff conditions.

Illustration 1 - Birch Creek, Idaho. A section of Birch Creek showing lack of cover and holding water. Streambanks are closely grazed, with little cover for fish.

Illustration 2 - Log and board dams constructed in Birch Creek reduced the fast gradient and provided deep pools and holding water for stocked and wild trout. Streamside vegetation increased after one year of protection from livestock.

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